Edition 3 CERES Meeting
TISA

September 29, 2005

Additional Data Products

- SRBAVG daily means (Ed2?)
- ISCCP cloud classification, height and tau (Ed2?)
  - Includes total cloud product
- Add SW insolation or absorbed
  - Have SW reflected and albedo
- An “ES-4 like” SRBAVG product
  - Small dataset for new users
  - GEWEX for flux comparison

GGEO improvements

- Rerun all GEO with updated and consistent visible calibration
- GEO based monthly clear-sky albedo map for thresholding
  - To account for spectral land differences
  - currently using monthly maps derived from MODIS
- Daytime-Nighttime normalization of GEO cloud parameters
  - Run daytime IR only to derive adjustment factors at night
    - Part of the current ISCCP algorithm
- Use cloud type climatology to interpolate cloud parameters
  - Particle size, cloud thickness - not retrieved GEO retrievals
- Limit GEO visible cloud properties to 78° SZA
  - Ensure consistency in the LW clear-sky
  - Twilight retrievals are suspect
- Process hourly GEO data ?
  - Must have significant improvement
- MODIS-GEO normalization of cloud parameters
  - View angle
  - Must maintain cloud fraction and optical depth consistency

SRBAVG improvements

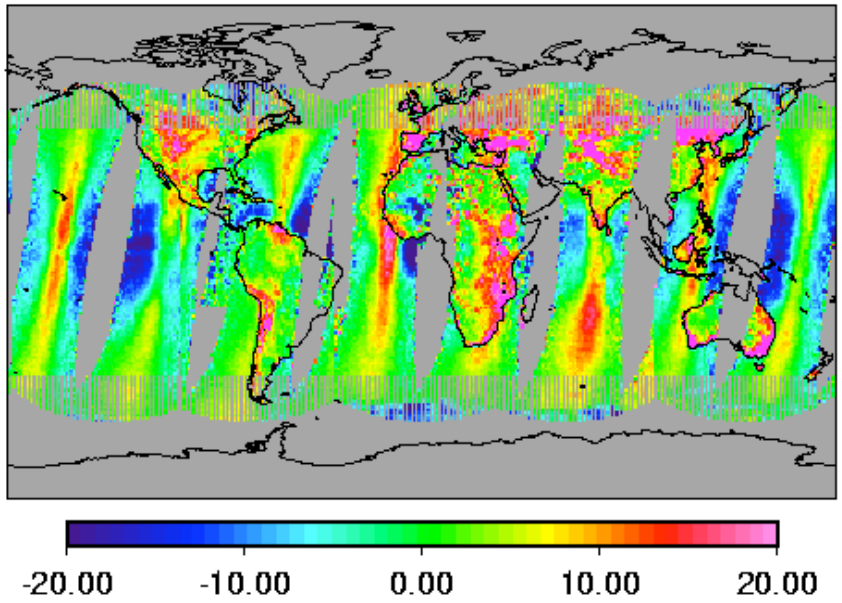
- Improved directional models
  - Near terminator adjustment
  - A possible 1 Wm-2 to the global mean
- Improve NB to BB LW
  - Night time flux improvement in deserts
  - potential 0.5Wm-2 global
- 0.5 degree gridding
  - Increase modeler community usage

SYN/AVG

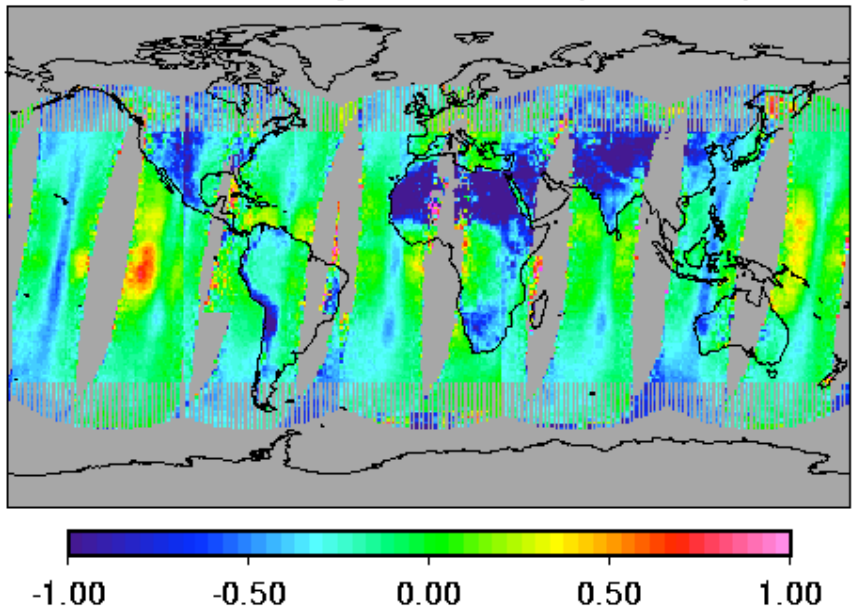
- Other potential changes are TBD from SARB

15 minute matches March 2000 - Feb. 2003

GGEO - MODIS Daytime Cloud Amount bias

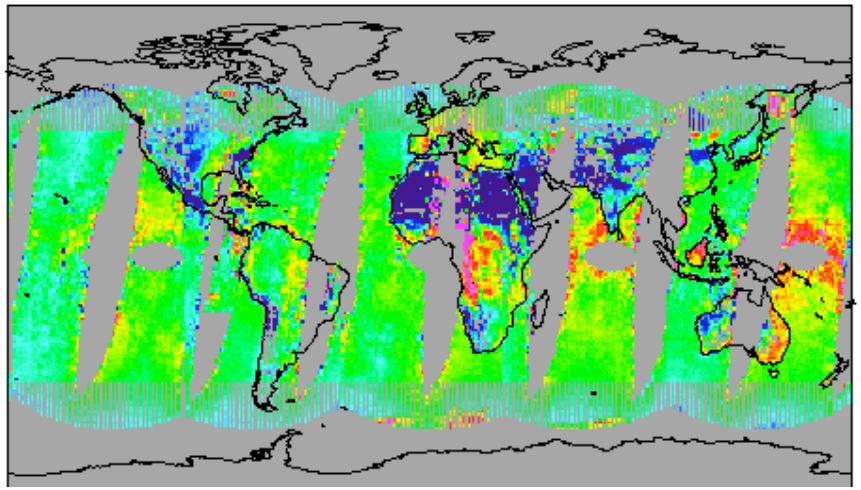


GGEO - MODIS Daytime LOG Optical Depth bias



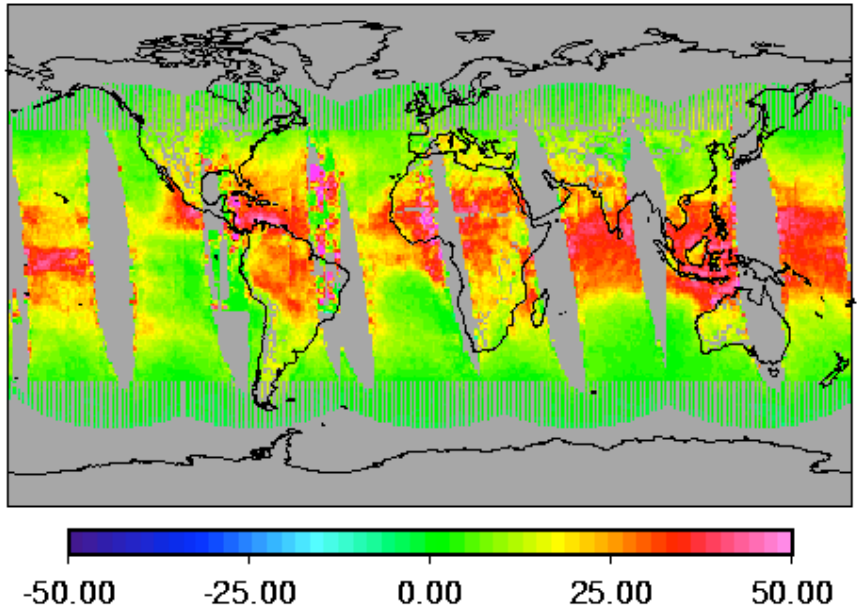
15 minute matches: March 2000 - February 2003 Glint < 10%: no sn

GGEO - MODIS Daytime Cloud Temperature bias

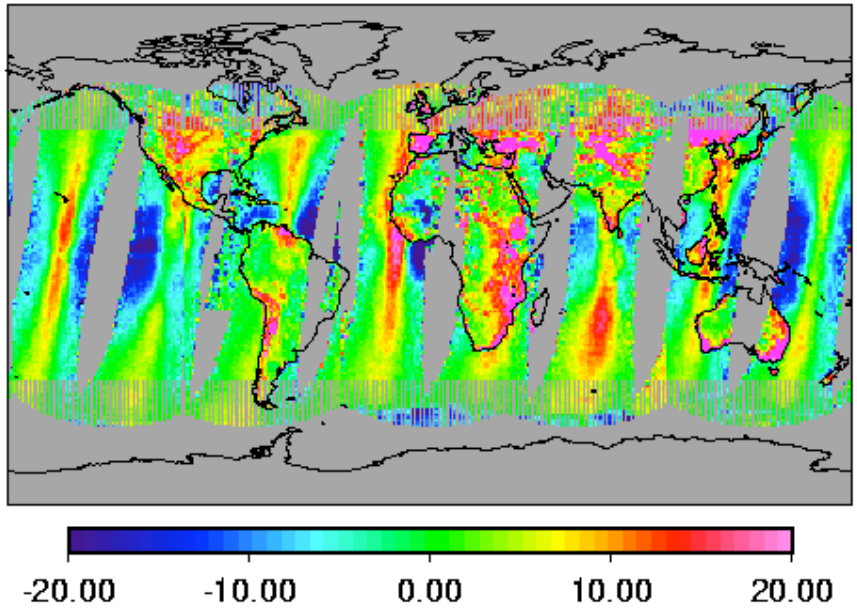


15 minute matches: March 2000 - February 2003 Glint < 10%: no sn

GGEO - MODIS Nighttime Cloud Temperature bias

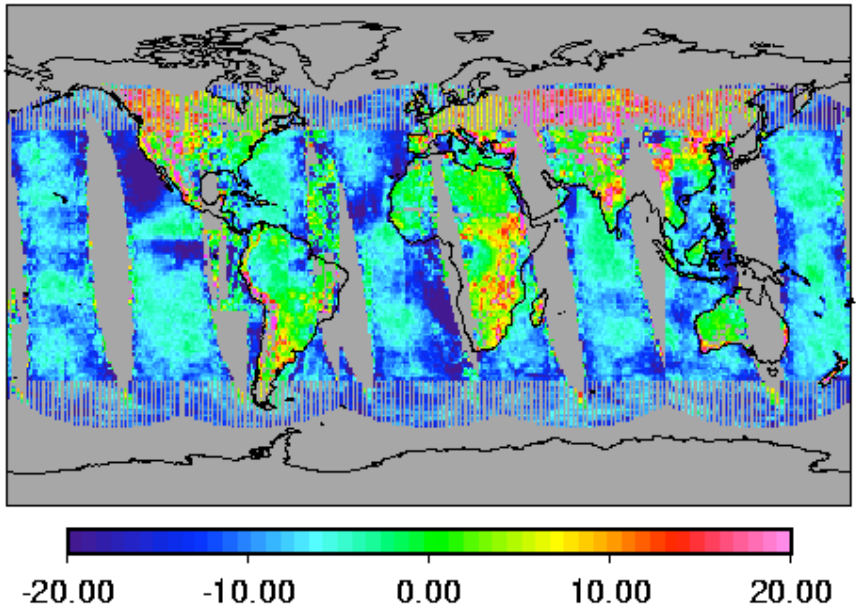


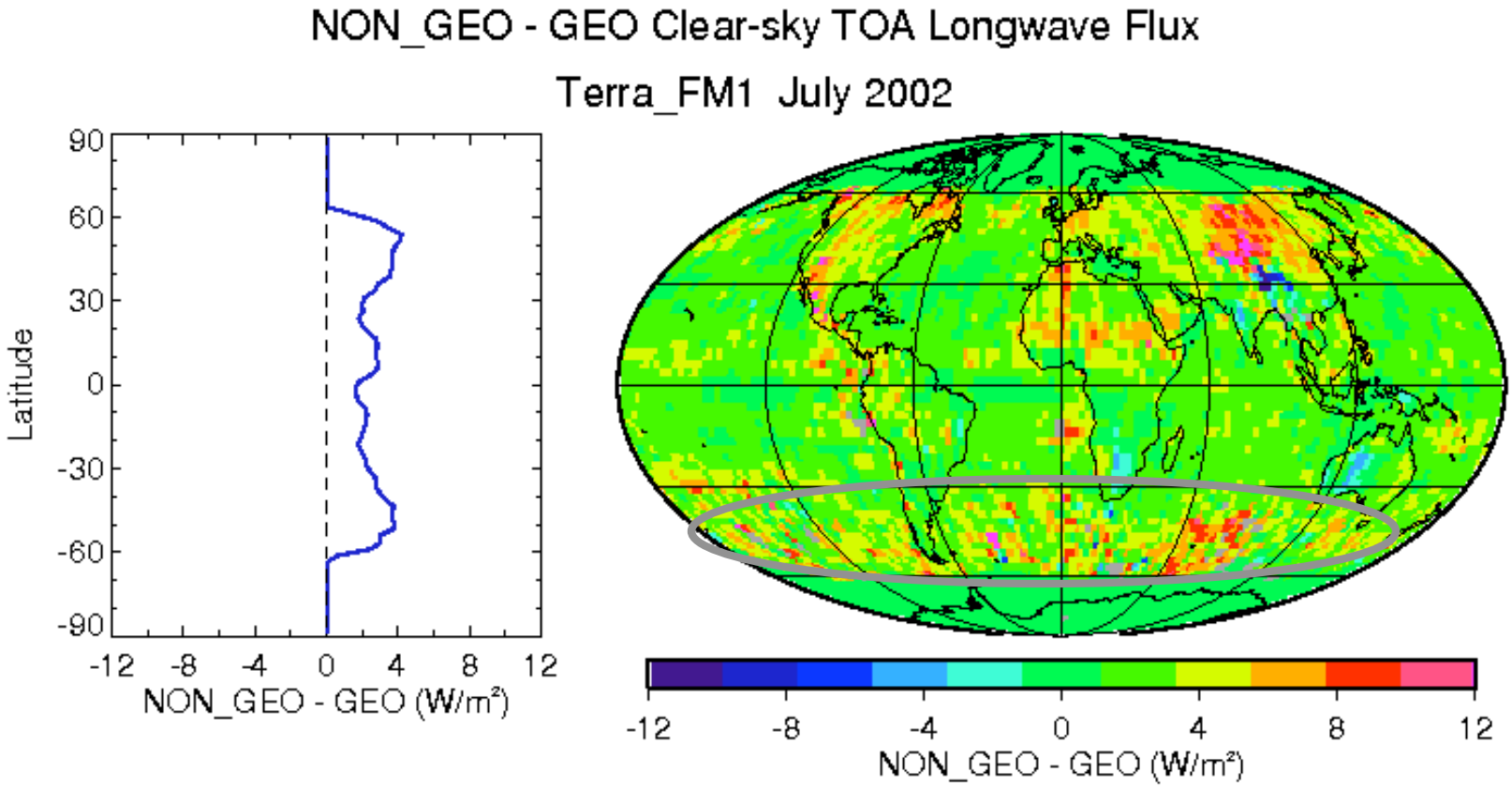
GGEO - MODIS Daytime Cloud Amount bias



15 minute matches: March 2000 - February 2003 Glint < 10%: no sn

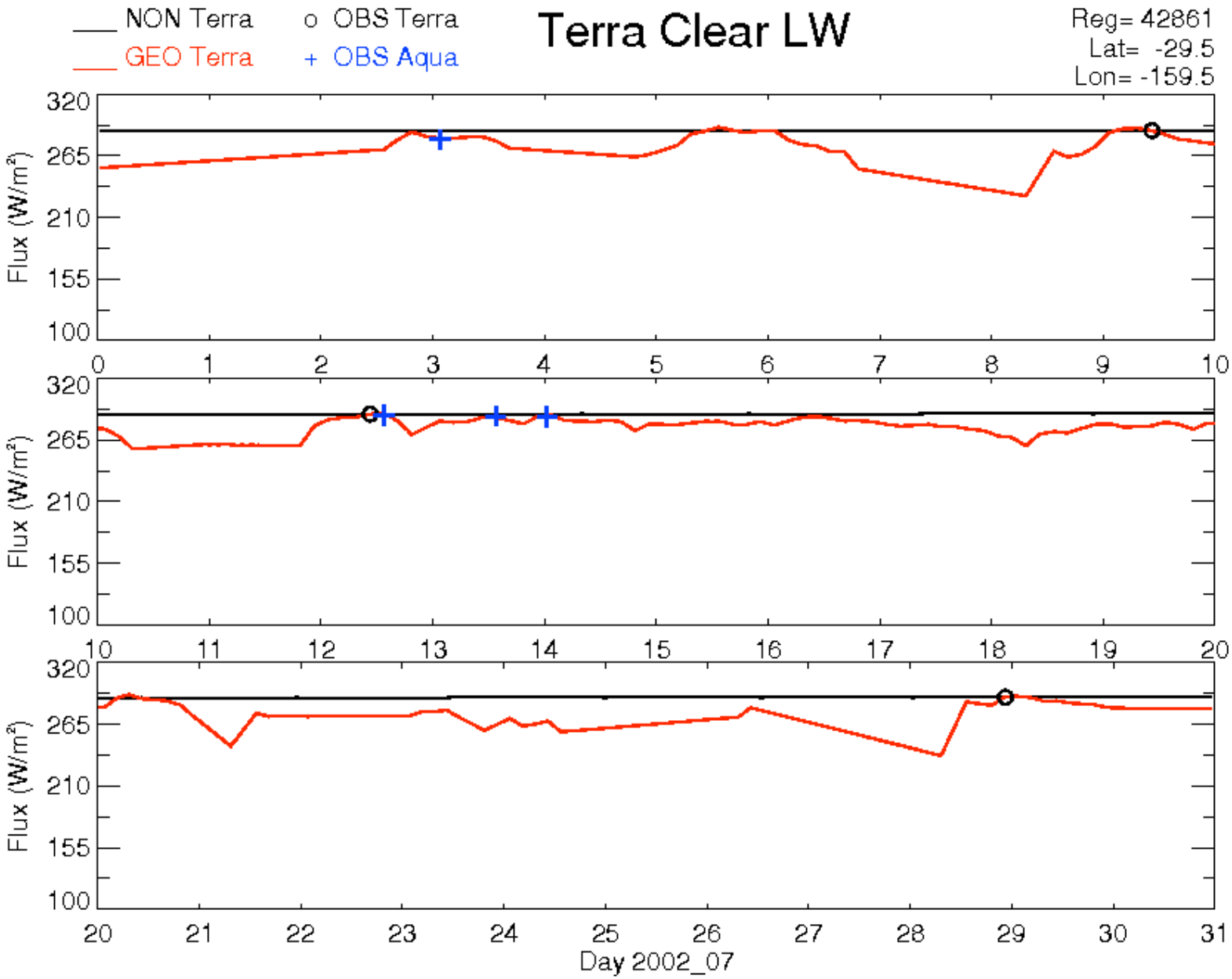
GGEO - MODIS Nighttime Cloud Amount bias



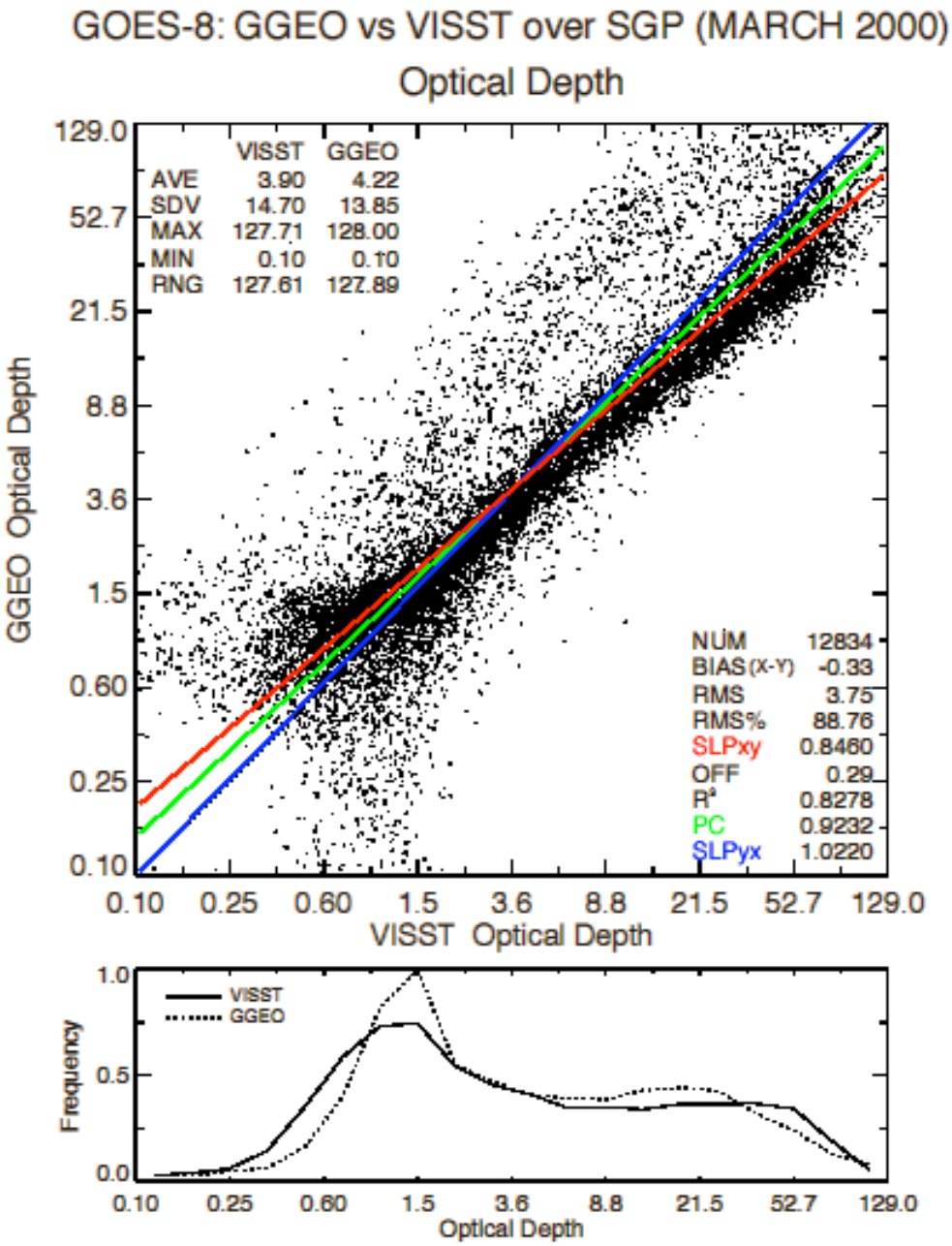


	NON_GEO	GEO	Bias
Global	271.5	269.2	2.3
60N-60S	279.9	277.2	2.6
30N-30S	288.6	286.4	2.2

- GEO clear-sky LW flux colder than non-GEO over Southern Oceans

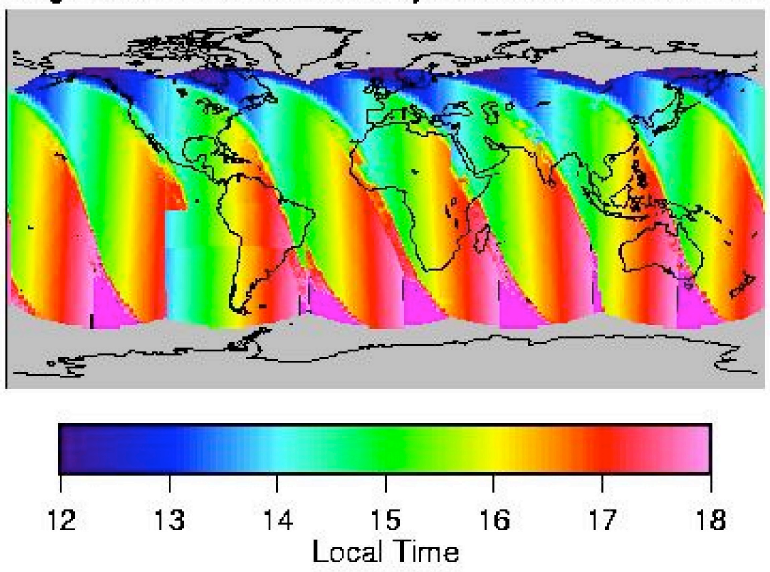

NON Terra
GEO Terra
OBS Terra
OBS Aqua
Terra Clear LW
Reg= 42861
Lat= -29.5
Lon= -159.5
Flux (W/m²)
320
265
210
155
100
0 1 2 3 4 5 6 7 8 9 10
10 11 12 13 14 15 16 17 18 19 20
20 21 22 23 24 25 26 27 28 29 30 31
Day 2002_07

GEO vs VISST Optical Depth

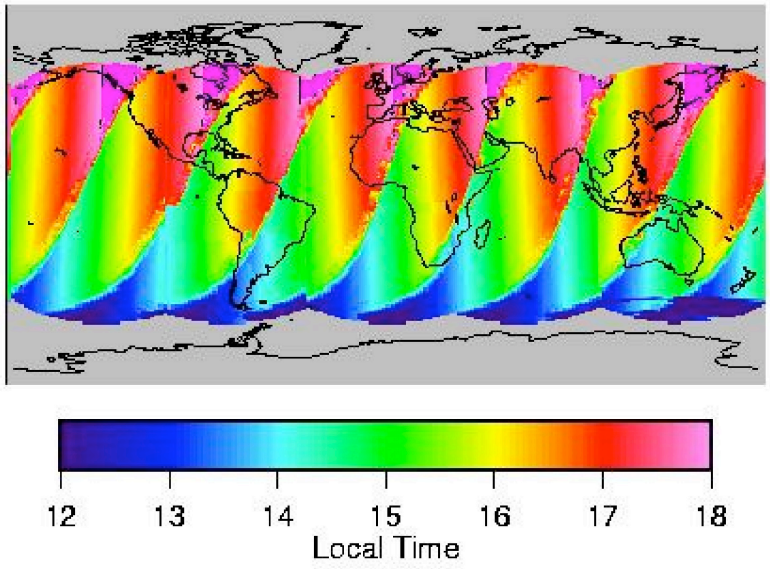


Local time of last GGEO observation

JAN 2001



JUL 2001

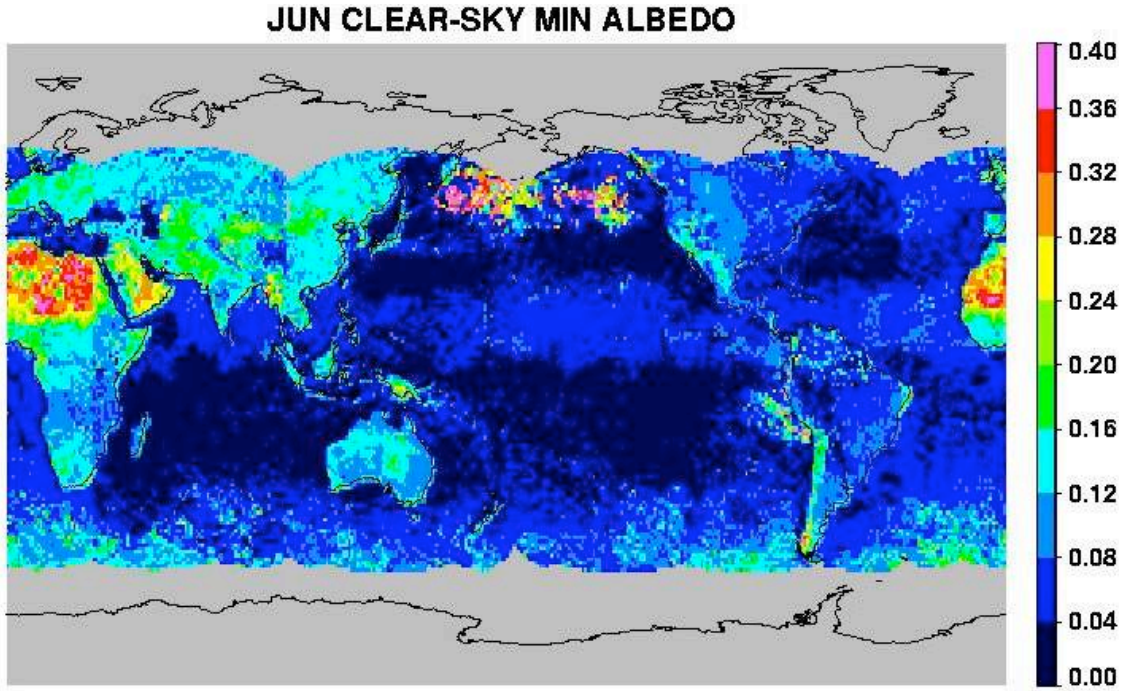


TISA interpolation

- SYN clear-sky interpolation over days where there are no clear-sky observations
  - Use monthly hourly means for SW
  - LW?
- Use Terra and Aqua based directional models
  - Assuming GEO derived BB radiances are closer to truth
- Implement directional models where the albedo approaches unity near the terminator
  - Increases the SW reflected
  - Increase the number of hourboxes in a day or use correction factors
- Use column weighted humidity above the cloud when applying LW narrowband to broadband
  - Currently using total column humidity
- Continued improvements in GEO SW
  - Narrowband to broadband
  - CERES normalization

June 2001

GEO Clear-Sky Albedo



MODIS Clear-Sky Albedo